Small Business Innovation Research

Fluid-Structure Interaction Using Unstructured Meshes

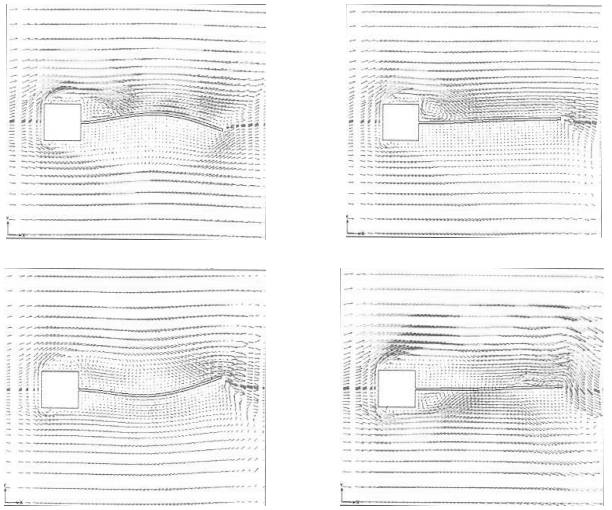
Fluent, Inc.
Lebanon, NH

INNOVATION

Unified treatment of fluid-structure interaction solving solid and fluid regions in one sweep

ACCOMPLISHMENTS

- Developed and tested robust and accurate schemes for computing flow on moving and deforming unstructured meshes
- Coupled a code for structural computation (both deformable bodies and rigid bodies with spring-mass-damper) to the code for fluid flow analysis



Deflection of Flexible Structure Behind Rigid Bluff Body

COMMERCIALIZATION

- Integrated the code developed under this SBIR as an important part of a general purpose CFD code
- Marketing and selling this general purpose CFD code under the name FIDAP
- Broad commercial application of FIDAP includes turbomachinery, automotive, chemical processing, material processing, biomedical, and offshore industries

GOVERNMENT/SCIENCE APPLICATIONS

- Useful to both NASA and the military in fluid-structure interaction problems in turbomachinery and in flexible and rotary wings

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